

# Arts, Linguistics, Literature and Language Research Journal

## TEACHING SCIENCE THROUGH CHILDREN'S LITERATURE: WITH THE PROJECT *TELLING STORIES WITH THE NATURAL SCIENCES*

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**Abstract:** The present work was conceived as a function of the project carried out with groups of pre-school age that sought to unite: children's literature, natural sciences and plastic arts, in order to promote the interest in scientific initiation of the small student. The organization and choice of works was designed according to the bibliographic collection available in schools, where children's literature books are sent by the Ministry of Education (MEC), to compose the collection of public school libraries. aimed at the choices according to natural science elements contained in the books, a survey was made of the students' interests regarding the stories they like the most and then it was thought how the stories would be told.

**Keywords:** Children's literature; Natural Sciences; Art; scientific experiments; preschool.

## INTRODUCTION

We started this reading project by carrying out a survey of the students' previous conceptions about children's stories, the following questions were raised in the classroom, and the written record of their answers was used. Before the questions were launched, we made available several works of children's literature for them to choose the most interesting.

What animals appear in the stories you see? Have you seen any of them? What foods do you like to eat the most? And if they don't like it, why? And the plants? Do you know the names? Do you have plants in your house? How they are? draw them for everyone to see. Do you like rain or sun better? Do you know any songs that talk about this?

This reading project was applied in two public schools of Early Childhood Education, where a story mat was made to give playful support to the story, and more elements of the story to be told, for example: animals

or elements of nature in the form of objects or figures, to really bring the student's story closer. The choice of classes was based on the age of the students between two and four years old approximately and we randomly chose three classes to participate in the project. The idea is to draw the student's attention and then understand if the stories worked motivated them to learn about science. And for that, we developed activities in partnership with teachers to collect this information..

## ASPECTS OF LITERATURE IN PRESCHOOL EARLY CHILDHOOD EDUCATION

According to the literacy process in progress, now mandatory from the age of 4, according to the LDB in article 4 and paragraph I - compulsory and free basic education from 4 (four) to 17 (seventeen) years of age, organized as follows: a) preschool; b) elementary education; c) high school. We will emphasize the first school years where literature becomes the most important point in the acquisition of reading and writing that since early childhood education (nursery and day care), the student is immersed in this universe of letters, even when he is still learning to speak.

(...) Literacy is characterized, on the contrary, by its excessive specificity, understanding by "excessive specificity" the autonomy of the relationships between the phonological system and the graphic system in relation to other learning and behaviors in the area of reading and writing, that is, the exclusivity attributed to only one of the facets of learning written language. (SOARES, p.9,2016)

Childhood literacy is a very controversial topic, mainly because it is related to school failure, illiteracy and other pejorative terms given in school statistics. For Chassot 2000, the term represents the set of knowledge that would make it easier for men and women to make a reading of the world in which they live.

Thus, among the concepts that have been

appropriated from the field of language studies are literacy, literacy and literacy. While the first designates a process, the last two seem to denote a kind of state or condition assumed by those who learned to read and write. (MARTINS, p.4, 2015)

As we are talking about pre-school education, we are not going to stick to the terms literacy and literacy, because these students have not yet learned to read and write, not assuming this "condition", we cannot analyze literacy from this angle, it is only as an indication of the consequences of the literacy process.

### **THE CHILDREN'S BOOK AS A TEACHING CENTER**

The storybook in this project becomes central to teaching not only the natural sciences, but also to expanding the students' concept of writing and vocabulary, as they go to school with previous conceptions about reading and writing.

The realization that children build knowledge about writing much earlier than expected and that they develop original hypotheses in an attempt to understand it expands the possibilities for the early childhood education institution to enrich and continue this process. (BRAZIL, p.123, 1998)

In early childhood education, the main idea is not to build literacy classes, but instruments that students can develop through their own reading and writing experience. Therefore, we still do not think about a reader itself, in this age group, the student is building, some faster and others slowly, writing and reading, each one in its maturation process.

Preschool teachers need to work in order to contextualize everything they are reading to their students, the setting of the stories in a universe of Natural Sciences, favors this construction of the imagination, as they are elements that are part of their daily lives, such

as like the sun; the moon; the stars; insects; trees ; flowers etc.

### **STRUCTURING THE READING PROJECT**

The reading project that brought together Science and Literature was designed for students aged between 4 and 6 years old, thought as a way of enabling a more practical and playful teaching, with the interest of students. school, after all read, was made available to students as a daily storytelling, to know how would be the acceptance of books during classes.

In each activity, the storytelling with visual and tactile resources was designed, which facilitates the understanding of the story, and the art to raise awareness of the theme and the sciences involved in the story told. The resources to tell the story can be made by the educator himself , such as printing real images of objects, plants and animals so that they have more contact with the reality that surrounds them. So, the reading project was elaborated as explained below :

#### **Book 1: the worm in love**

**Resources for storytelling:** Worms made from old socks; wire glasses; little house made of cardboard;

**Arts:** Making pasta with wheat, cooking oil, wheat flour and food coloring. Then ask the students to make worms with the clay.

**Sciences:** Construction of a worm farm with a cardboard box and thick plastic, so that the worms can be seen. With the help of the students, we are going to dig and look for worms in the school's backyard.

#### **Book 2: The bag**

**Resources for storytelling:** Photos of the animals plasticized with contact; and or stuffed animals of these animals.

**Arts:** Making folding paper planes and a paper boat.

**Sciences:** We are going to propose, put

the paper boats in a large basin with water, to observe how they float on the water and the paper planes will be tested how long they can stay gliding in the air.

**Book 3: Sunny day**

**Resources for storytelling:** yellow birthday ball; string; cotton;

**Arts:** Painting with a toothbrush (use of black ink).

**Sciences:** Optical illusion, near and far with magnifying glass.

**Book 4: Garden Street, 75**

**Resources for storytelling:** Bell made of rattle with pet bottle; snail made with EVA or foam; artificial flowers; colored pencil box; old shoe; plastic watering can; house made of cardboard;

**Arts:** Blown purple paint with a birthday ball filling device.

**Sciences:** Color mixtures that form the color purple; chemical compounds that are purple in color and disperse in water, such as permanganate.

**Book 5: The apple bug**

**Resources for storytelling:**

A real apple and a plastic one; earthworm real photo; plastic trees; sock snake.

**Arts:** Paint splashed with a red ketchup tube.

**Sciences:** Leave the apple exposed for several days, always observing and making notes about the change in its natural state.

**Song:** A little worm does gymnastics.

**Book 6: the gluttonous frog**

**Resources for storytelling:**

Actual photos of the following animals: frog; cricket; fly; firefly; water lily;

The fly can be caught and placed in a plastic pot;

Actual photos of the following vegetables: tomato; lettuce; watermelon; jabuticaba; corn; noodles and ice cream. In a transparent jar, the noodles can be exposed and an ice cream can be made from EVA and styrofoam ball.

**Arts:** Making jumping frogs with cardboard plates.

**Sciences:** Popcorn pops why? Put it in a hot pan with a little oil and see what happens.

Why does ice cream freeze? Let's make it with ready mix for ice cream and put it in the freezer and see what happens.

Bring an aquatic plant and place it in a clear container to observe its roots. How do they float? Make water lilies out of paper and do the same procedure, put them in a basin with water and see how they look.

**Book 7: Maricota's basket**

**Resources for storytelling:** A wicker basket or one made with recycled materials (newspaper, cardboard box); real vegetables so they can touch and smell, such as: carrot, orange, cucumber, lemon, banana, corn, papaya, tomato, onion, apple. And real photos of the following vegetables: peas, lettuce, hearts of palm and endive.

**Arts:** Spinach dye painting; made with 88° alcohol; a glass package.

**Sciences:** Conduction of energy with lemon (make with two wires and a small light bulb in the end), put inside the solution of lemon.

**Book 8: At the end of the rainbow**

**Resources for storytelling:**

An umbrella made with EVA; an image of the rainbow or the same made with colored EVA; cotton; cellophane paper; a small pet bottle cut in half and wrapped with aluminum foil and inside chocolate coins.

**Arts:** Wet painting with colored crepe paper.

**Sciences:** A CD; a flashlight; a whiteboard or white wall. With the use of the flashlight, illuminate the CD that will project the colors of the rainbow on the wall.

**Book 9: the wind and the sun**

**Resources for storytelling:**

A fan; cellophane paper; a yellow birthday ball and featured with a face representing the

sun; a doll with clothes.

**Arts:** Blown paint with straw.

**Sciences:** Building a weather vane out of a PET bottle, broom handle and plastic tails to measure the direction and distance of winds, and what they can do.

## **METHODOLOGICAL ASPECTS OF THE READING PROJECT**

The project was based on the qualitative research methodology where a more adequate analysis can be made on the data collected during the work carried out in the classroom. According to Lüdke and André, 2013: Qualitative research has the natural environment as its direct source of data and the researcher as its main instrument.

According to the two authors, qualitative research involves the researcher's direct and prolonged contact with the environment and the situation being investigated, usually through intensive fieldwork.

As in participant observation, insertion in the field of research-researcher x professor, as a researcher of his own practice. We can organize a reading project that aims at the interest of students using material from their school routine, that is, written material, the book with colors and drawings that draw attention to the story. Qualitative research offers a broad theoretical basis to support research work on education and science, as it seeks to raise the human aspects of learning in a school context.

An evaluation proposal was planned for these students, given that there is a need to understand, within a research, whether the objective with the project was fully or partially achieved. In Early Childhood Education, the assessment is summative and without the character of approval or disapproval, what we evaluate is whether the learning of a certain content was achieved and how it was achieved.

What we need to understand is that in

this segment, children have not yet mastered reading and writing, so the evaluative activities focus on drawings and oral reports, it is the way found by them to relate to the world. Then, four activities were developed within the perspective of Early Childhood Education: drawing on the story told; retell the story as you see fit; draw what you liked most about the experience; explain how the experiment was done.

## **THE INFLUENCE OF LITERATURE ON CHILDREN'S ACQUISITION OF SCIENTIFIC KNOWLEDGE**

In the classroom, we carried out the pre-test with the books chosen by the educator and after thinking about which Science activities would be proposed for each book of literature, the right measure for preschool age was found.

When the teacher makes a preliminary selection of the story he will tell to children, regardless of their age, paying attention to the intelligibility and richness of the text, to the sharpness and beauty of the illustrations, he allows the children to build a sense of curiosity for the book. (magazine, comic book etc.) and by writing. (BRASIL, p.135,1998)

This innate feeling of curiosity of the small child is what we will use in the teaching of natural sciences, the stories told and that talk about the sun, insects and rain, for example, can help not only the child to hold the letters, as thought For many teachers, the charm caused by imagination leads the child to develop questions and questions about the functioning of nature and then, some questions arise: Where does the sun live? Why does he disappear at night? Do the animals have a home? Do they have a mother and father? Does the worm stay inside the earth? Doesn't she eat?

These questions were asked by the students during the making of the project, and to



respond to their desires, practical activities were inserted together with the reading of the written text.

As our focus is on the sciences and, therefore, on the understanding of the natural world, information from experiences serves as a rich source of data for studies to be carried out in the classroom. needs to promote investigation through problems to be solved. (SASSERON,p.47,2013)

These sources of data that students bring, that is, ideas they have about the phenomena and nature around them and their questions that are glued to their daily life, are used for the construction of knowledge in science, with practical experiences in that they can feel, touch and smell. The experience of the world *Natural* t in which to also be placed in a form *natural* for the child, so that he gets used to science as part of his daily life.

The project had a continuous evaluation process, since it is about young children and each step taken needs to be seen and reviewed, as interests and focus can change. In the first moment, the evaluation consisted of a drawing about the story told, so we realized what they understood about what was reported during the course of the story. And it is through the drawing that the small child who does not yet know how to read and write, expresses his thoughts and feelings.

In the second moment, each student was asked about what they drew in the story, this is a very important moment in the evaluation, because we will know what the student interpreted about what was told. And in the third phase of the evaluation, we tried to ask the main character of the story. We work with these three variables, namely: drawing on the story (includes total aspects of what they saw and heard); the interpretation of the drawing itself (if they developed an idea about what they heard or if they drew another theme); which main character of the story (the idea of a more important character, restricts and

resumes the original idea of what was asked before, drawing about the story).

It is possible that the student still draws something that has nothing to do with what was asked, so other developments will be possible: he just drew what he wanted at that moment; he drew something that is very strong in his daily life; or even did not understand the proposal. We will not address the latter, as it is not our research objective. The evaluation applied in the four age groups attended at the school unit, each group has a number of about twenty-five students; had the results described in the table below:

Variables	2 years	3 years	4 years	5 years
<b>drawing on the story</b>	4	10	17	22
<b>Interpretation of story</b>	1	7	15	21
<b>Character main</b>	0	4	13	21

We consider that of the twenty five surveyed, those who did not respond adequately to the proposal, may fall into the following cases: cognitive immaturity; the proposal is not suitable for the age group, we noticed that the lower the age, the fewer positive responses we obtained, with the variation of the higher the age, the more positive responses; the student did not perform the activity because he did not want to do it, but rather draw on another topic that was more meaningful to him; the student has special educational needs.

## FINAL CONSIDERATIONS

This reading project, involving arts, literature and science, was of great value to the construction of the image of writing and science, as the students were motivated and attentive to the entire development of the work, everyone wanted to do and repeat everything that was done. . Among the

activities planned as a test activity, we had the spontaneous drawing that most demonstrated the representations of nature by the students, of course in very different age groups, representations also different.

The different representations showed that there are no ready-made recipes for working with the natural sciences and that we can suggest activities that arouse the innate interest of children, so to speak, because we

are also part of this nature and motivation for discovery leads to the development of required skills and abilities. in the new common curriculum base.

This work can also be used in preschool classes with the appropriate adaptations, favoring aspects of writing, learning and acquisition of oral and written vocabulary.

## REFERENCES

SASSERON, Lúcia Helena. Interações discursivas e investigação em sala de aula: o papel do professor. IN: CARVALHO, Ana Maria Pessoa de. (org.). São Paulo: Cengage learning, 2013.

BRASIL. MEC. Referenciais Curriculares Nacionais da Educação Infantil: Conhecimento de mundo. Volume 3. Secretaria de Educação básica. Brasília: MEC, Seb.1998.

LÜDKE, Menga; ANDRÉ, Marli E.D.A. Pesquisa em Educação: Abordagens qualitativas. 2ª Edição. São Paulo: EPU, 2013.

SOARES, Magda. Letramento e alfabetização as muitas facetas. Disponível em: <http://www.scielo.br/pdf/rbedu/n25/n25a01.pdf>. Acesso em: 22/08/2016

CHASSOT, Attico. Alfabetização Científica: questões e desafios para a educação. Ijuí: editora Unijuí, 2000

MARTINS, Isabel. Alfabetização científica: metáforas e perspectiva para o ensino de ciências. Disponível em: [http://www.cienciamao.usp.br/dados/epf/\\_alfabetizacaocientificam.trabalho.pdf](http://www.cienciamao.usp.br/dados/epf/_alfabetizacaocientificam.trabalho.pdf). Acesso em: 04/05/2015 Livros do projeto:

ALMEIDA, Fernanda Lopes de. A margarida friorenta. 25ª edição. São Paulo: Ática, 2008

BARBIERI, Stela. O sapo comilão. São Paulo: Editora DCL, 2012

BELINSKY, Tatiana. A cesta de Dona Maricota. 14ª Edição. São PAULO: Paulinas, 2012 MORICONI, Renato. Dia de sol. São Paulo: frase e feito, 2009

ROSCOE, Alessandra Pontes. O minhoco apaixonado. 1ª edição. São Paulo: Canguru, 2013

TERRA, Ana. Rua Jardim, 75. Editora Larousse Júnior, 2001 ZIGG, Ivan. O saco. 3ª edição. São Paulo: Duetto, 2013

\_\_\_\_\_. Psiu! 1ª edição. Rio de Janeiro: Nova Fronteira, 2012 ZIRALDO. O bichinho da maçã. São Paulo: Editora Melhoramentos, 2005